

1     **ABSTRACT**

2             This invention concerns optimal ad selection for Web pages by selecting and  
3     updating an attribute set, obtaining and updating an ad-attribute profile, and optimally  
4     choosing the next ad. The present invention associates a set of attributes with each  
5     customer. The attributes reflect the customers' interests and they incorporate the  
6     characteristics that impact ad selection. Similarly, the present invention associates with  
7     each ad an ad-attribute profile in order to calculate a customer's estimated ad selection  
8     probability and measure the uncertainty in that estimate. An ad selection algorithm  
9     optimally selects which ad to show based on the click probability estimates and the  
10    uncertainties regarding these estimates.